DOCUMENT RESUME

ED 110 247 RC 008 695

AUTHOR	Pereira, Cecil
TITLE	The Effects of the Level of Manufacturing Industries on Local Government Revenues. Center of Applied Sociology, Working Paper RID 75.6.
INSTITUTION	Wisconsin Univ., Madison. Center of Applied Sociology.
SPONS AGENCY	North Central Regional Center for Rural Development, Ames, Iowa.; Wisconsin Univ., Madison. Coll. of Agricultural and Life Sciences.
REPORT NO	RID-75.6
PUB DATE	24 Aug 75
NOTE	28p.; Paper prepared for the annual meeting of the Rural Sociological Society, San Francisco, California, August 21-24, 1975
EDRS PRICE	MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS	Community Size; *Correlation; Employment; Family Income; Hypothesis Testing; *Income; *Industry; *Local Government; Longitudinal Studies; *Rural Areas; Taxes

ABSTRACT

Utilizing a datafile compiled by Gene Summers from various censuses of governments publications, the following hypotheses were tested: (1) a relationship exists between county government revenue and the level of manufacturing, the size of the population in the county, and the median family income; and (2) a change in the former is due to changes in the 3 latter variables. The relationship between the dependent variables (revenue as broken down into the 4 components of Federal intergovernment. State intergovernment, property tax, and other tax revenues) and the independent variables (level of manufacturing, employment, population size, and median family income) were analyzed at time periods spanning over 15 years (1950, 1956, 1960, and 1966). The schematic models employed were analyzed in terms of the following regression equation: year of total revenue or its component=level of manufacturing + population size + median family income. Analysis indicated that industrial development was not the panacea for community revenue needs, as county revenues appeared to depend upon people rather than industrial plants per se. (JC)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED110247

CENTER OF APPLIED SOCIOLOGY
University of Wisconsin - Madison

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRO
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY

THE EFFECTS OF THE LEVEL OF MANUFACTURING INDUSTRIES ON LOCAL GOVERNMENT REVENUES

Cecil Pereira
University of Winnipeg

Working Paper RID 75.6

This paper was prepared for the annual meeting of the Rural Sociological Society, San Francisco, August 21-24, 1975. Compilation and analysis of data from the National Sample of Counties was supported by the College of Agricultural and Life Sciences, University of Wisconsin-Madison and by a North Central Regional Center for Rural Development Research Grant, Gene F. Summers, Principal Investigator.

Cooperative Extension Programs
University of Wisconsin-Extension

Department of Rural Sociology
College of Agricultural and Life Sciences

R008695

Acknowledgements

I gladly acknowledge my gratitude and indebtedness to the many people who helped me with this paper. Gene Summers, teacher, friend and colleague and the "guys" on the research team were always ready to listen and discsus my difficulties. Their suggestions on an earlier draft of this paper were very useful. Also extremely useful were Prof. Sheldon Danzinger (Economist, with the Poverty Institute, University of Wisconsin, Madison) and Howard S. Garrison (Dept. of Sociology, University of Wisconsin, Madison) who gave unstintingly of their time and knowledge.

The University of Winnipeg, Winnipeg, Manitoba, Canada provided the funds for me to travel here today. I am happy to acknowledge their assistance.

To Mary Miron, who cheerfully typed this paper under time pressues, I would again like to say thank you.

It is now generally known that in the United States of America government expenditures outweigh government revenues. This tendency of expenditure to outrace revenues has been going on at least since the Second World War and is increasing in both absolute and relative terms. In fact, the difference between expenditure and revenue has reached such dimensions that some scholars have labelled this phenomenon the fiscal crisis in America.[1]

Government officials know that eventually the crisis will adversely affect the life style of every American and that an attack on one or a combination of factors is needed to alleviate the situation. One "easy" way to "solve" the problem is to cut back on government provided services. This measure would ignore those citizens most dependent on government services whose needs would be further neglected, and so it has to be weighed against social costs (crime, riots, etc.). Other suggested solutions are: (a) to increase government revenues by direct or indirect taxation and/or (b) to legislate various types of "freezes" and/or "credit" expansion programs and/or (c) to reform or make more "efficient" the present taxation system and/or (d) to find a new revenue tax base.

In smaller counties, specifically the nonSMSA type, government officials have traditionally seen the search for a new tax base, in the form of industrial development, as the solution to their fiscal problems and to everything else that ails the community. Officials in these areas have been known to actively compete with local officials from neighboring communities to induce a prospective industry to select their community

as the site for a new industrial plant.

It is the purpose of this paper to make explicit the causal model implied in the general notion that industrial development will ease the fiscal crisis of smaller communities. To achieve this objective an attempt will be made to analyze the relationship between the revenue of county governments (as a proxy for the local governments) and the level of manufacturing in the county. The model will be tested using county revenue data, obtained from a national sample of 276 nonSMSA counties in the U.S.A.

Related Research Results

Industrial impact research in the U.S.A. has been going on for more than thirty years.[2] Hence, there is no dearth of research investigation into the effects of industry on the nation, the region, the state or the community. There is also no lack of assumptions, approaches or research findings.

Of the many assumptions that underlie industrial development and research, the five most common are (a) the idea that the location of industry somehow promises to be the panacea for all ills, (b) the reliance upon a cost/benefit analysis as an effective tool by which to appraise a project, (c) the belief that various kinds of concessions are necessary in order to attract industry, (d) the commitment to "growth" at any cost and (e) the notion that bigger is better.[3]

Scholars have tested one or a combination of these assumptions from a variety of disciplines and depending on the objectives of their research have confirmed or questioned their validity.

In this country the greatest amount of impact research has been sponsored by the United States Department of Agriculture and the Agricultural Research Stations. Their findings are usually available in the form of Research Bulletins. It is only recently that these research station studies have been ferreted out, compiled and assembled in one place.[4] Most appear to be specific to the area or plant being investigated or "one shot" pieces of research. Often the investigation was started after the plant was constructed or in operation (Summers, Industrial Invasion).

In recent years, attempts have been made to overcome the accusation that impact research is "specific", "one shot" attempts at understanding industry's impact on a community. Attempts have also been made to overcome the general impression that the findings were unique to the area. Scholars led by Hirsch, Shaffer, Garrison, Ulrich and others have started looking at half a dozen or more communities at the same time. Their research, in terms of industry's impact on the public sector of the economy, has been concerned mainly with the expenditure side of the fiscal coin. Hirsch looked at the impact on schools and school districts and examined the changes in employment, income, tax base, school revenue and expenditures. He concluded that the fiscal health of a school district improves only "<u>if state aid is included as a revenue source</u>".[5] Other researchers like Lowenstein, Isard and Coughlin examining the impact of industry on the public sector of the community concluded that the additional municipal revenues generated by new industry are frequently greater than the additional cost. No

attempt was made, however, to evaluate the impact of industry on revenue per se or to isolate the specific components of revenue that were affected by industrial location.

Working with both the private and public sectors of communities exposed to industrial plant location have been scholars like Garrison, Shaffer, Hagerman and Braschler, Stevens and Wallace and Wadsworth and Conrad.

Garrison concluded from his study of nine new plants in five Kentucky communities that the industrial impact on the public sector tended to be negative when industrial property was exempt from taxes and when service requirements were increased by new residents and students.[6] Hagerman and Braschler who researched three new firms examined changes in public sector revenues and expenditures. They did not link changes in the public sector finances to new industry, new population or new students nor did they isolate new industry's impact.[7] Stevens and Wallace examined changes in county government revenues (assessed valuations and tax rates) between 1947 and 1960 but they too did not directly relate gains in the public sector revenues to the new industries they were monitoring.[8]

The same can be said of Wadsworth and Conrad who made no estimate of the net gains to the public sector or to the community due to the presence of an industrial plant.[9] Shaffer in his study of The Impact of Industry on Rural Communities in Oklahoma found that the communities studied received substantial net economic benefits from new industries but that the major portion of the gains were from the private sectors.

"The municipal government and school districts experienced a small net change in their fiscal base from industrialization". Shaffer concludes, "From a national perspective rural industrialization was beneficial in the short and intermediate run, but had adverse effects in the long run".[10]

Other factors that appear to account for changes in county revenue appear to be the size of the population and the median family income of residents of the county. Unfortunately, most of the studies monitoring industry's impact do not focus on demographic data and use population statistics as a background against which to study the economic or ecological effects of industrial invasion.[11] (See Summers, et al., 1975, for a review of the content of 178 case studies.) What research has indicated is that population gains have been experienced by communities and that median family income has changed as a result of industrial location. The effect of these changes on county revenue is a question that still needs to be resolved by empirical research.

It must also be remembered that county governments have little or no tax raising power. They are legally subordinate to the State without whose consent they cannot raise or remove any taxes. "They owe their origin to and derive their powers and rights wholly from the [State] legislature" (this is the famous "Dillon Rule" after Chief Justice Dillon of the Supreme Court of Iowa:29 Iowa 475 1868).[12] The functions and powers of the State government as opposed to the Federal government are also enumerated in Article 1, Section 8 of the Constitution with the Tenth Amendment reserving for the State "all powers neither delegated to the National government nor prohibited to the State". The county is

the primary agent assigned to carry out State functions. It exists in all the 50 states of the U.S.A. except Connecticut and Rhode Island. In Louisiana the term "Parish" and in Alaska the term "Borough" is used in lieu of county. Not all counties have county governments.[13] Sometimes, municipal and county governments merge as municipalities. Municipalities are relatively concentrated population areas providing specific services to cities. In Baltimore and St. Louis and in 35 cities in Virginia, the cities are outside the counties, so that nearly 12 percent of U.S. population is not served by a county government. These are also townships that serve inhabitants of an area without population concentration, performing limited functions. The number of county governments per state varies with Delaware and Hawaii having three each and Texas having 254. The average number of county governments if 6.1, with the Western and North-Eastern regions below and the southern and mid-Western regions well above average. The average number of residents per county is 56,975 with Hinsdale, Colorado having 200 and Los Angeles county 6.8 million.[14]

County Government revenue are obtained from five main sources. The Federal and State intergovernment transfers in the form of grant-in-aid and shared taxes (40%). The property tax (42%) other nonproperty taxes (3.6%) and taxes on miscellaneous items (14%). The intergovernmental revenues are usually "closed", i.e., for special programs like highways and schools. They are allocated according to known criterion and cannot be diverted for needs other than those specified. The main source of "nonspecified" county government revenue is the property tax

which represents up to 93 percent of all its taxable effort. It is the mainstay of the county government, though there appears to be a growing feeling that the tax burden on property owners is extremely high and an alternative source of revenue is required. It is generally held that in counties which do not have an alternative revenue source the reliance on property tax is expected to be relatively higher than in counties that do have an alternative. The extent to which reliance on property tax changes due to industrial invasion also requires investigation.

In summary, then, one sees that the research findings on the impact of industry on the public sector has been a cautious observation that revenues generated are greater than costs of industrial location or that the impact tends to be negative when industrial property is tax exempt or when one projects in the long run. Relatively little work has been done to understand how general revenue or its components are affected in some counties and not in others or how revenue changes occur in some counties and not in others as a result of industry locating in that area. What is also lacking is a wider unit of analysis and a longer time span so that data from a sample of counties that is national in representation is analyzed beyond the traditional "short run" span of five to ten years. As succinctly observed by T. E. Till, Jr.[15] "most studies are essentially 'short run' i.e. concerned with changes which occur one year or a few years after the plant started production." Most existing studies are also specific to the area or plant being investigated. Those that do consider a longer term become "a spatially and temporally unique ethnography", difficult to use to guide development projects in other

parts of the nation.

The neglect of these aspects of research is due in part to the difficulty in obtaining data for a national project that utilizes a sample of counties in the U.S.A. In part, the neglect is due to the difficulty of comparing data since no single formula to measure revenue or revenue capacity or revenue effort is used across the nation. Not only is there no single formula but there is no consensus in academia of what revenue capacity means or ought to mean or what the measures measure or ought to measure.[16] For this analysis it was felt that the debate in academia could be bypassed if one accepted the Advisory Commission for Intergovernmental Relations definition that "revenue capacity equalled actual revenue raised".[17] The most obvious advantage in using this definition is that it permits comparisons among counties across different points in time, regarlless of individual county formulas that are used to determine revenue effort. It also provides the standard of comparison necessary for a task of this magnitude, allowing one to make use of an already collected body of data.

The second obstacle of obtaining county data for a national project was overcome mainly through the energies of Gene Summers who was instrumental in compiling a mammoth data file from the various census of governments publications. So, the opportunity to test the research findings of "short run -- one shot research" on a national sample should provide some clues to what happens to county revenue when industry moves into its area. The overarching hypotheses are: (a) that a relationship exists between county government revenue and the level of manufacturing,

the size of the population in the county and the median family income; and that (b) a change in the former is due to changes in the three latter variables.

By decomposing revenue into four major components (Federal Intergovernment revenue, State intergovernmental revenue, Property tax revenue and other tax revenue) these hypotheses can be extended further to test the variance with each component of revenue thus: There is a relationship between Federal government transfers in 1950 and the level of manufacturing (1949) population size (1950) and median family income (1949) etc. etc. etc.

In this paper an attempt will be made to test the above hypotheses. The relationship between the revenue variables (dependent variable y) and the other three variables (independent variables x_1, x_2, x_3) will be defined by the regression equation:

$$y = a + b_1x_1 + b_2x_2 + b_3x_3$$

y_1 = Revenue of county government with % federal revenue = (i), % state = (j); % property tax = (k) and % other = (l)

a = constant

x_1 = level of manufacturing employment

x_2 = population size

and x_3 = median family income

The analysis will be carried out at time periods spanning over fifteen years. The year under investigation will be indicated in the equation by the following symbols:

P = 1950 data

Q = 1956 data

R = 1960 data

S = 1966 data

In many instances data were collected a year or so earlier than the letter that symbolizes it. Revenue data were collected in 1951, 1956, 1961 and 1966-67; industrial development data in 1947 and 1959; population data in 1950, 1960 and 1970 while median family data in 1949, 1959 and 1969.

The 1951 and 1972 Census of Finance data is not usable because someone in the Census Bureau with infinite wisdom has recategorized these data making comparisons with what was published from 1956 through to 1966 impossible.

What will be discussed are regression equations using data from the early fifties through to 1966. Schematically the models are as follows:

	Total revenue or its component (y)	=	Level of manufacutring b_1x_1	+	Population Size b_2x_2	+	Median Family Income b_3x_3
P	51*	←	47	←	50	←	49
Q	56						
R	61	←	59	—	60	—	59
S	66						
	72*	←	70	←	70	←	70

*No data available as categories changed by unknown census official!

Before proceeding with the analysis a little more needs to be said about the data and its characteristics. Data were made available courtesy of Gene Summers. The number of cases where data were missing for this study were not large. This was due to the fact that the census of government replaces missing data with the mean from counties having similar characteristics. So neither revenue nor population nor median income data could be called inadequate. The data on total number of jobs in the county and the total number of jobs in manufacturing which were transformed (Man*100/total emp.) to give the percent of manufacturing employees in the county did have 45/276 and 50/276 cases of missing data. These data were not reported by the counties or were withheld by the publishing agency to avoid disclosure of information for an individual reporting unit. For all such cases missing data was replaced with the mean.

To determine the reliance on a specific component of revenue, for example, property tax, the following transformation was carried out $\left(\frac{\text{Property tax revenue}}{\text{Total county revenue}}\right)$*100. Property tax was seen, in keeping with the general assumptions, as a function of the percent of manufacturing employees in the county plus the size of the population plus median family income. It was hypothesized that the greater the former, the greater the latter three variablesand vice versa. Similar transformations were carried out for other revenue components. And the results were examined at three different times (five years apart) 1956, 1961, and 1966. Then change over time was scrutinized to determine the extent to which change in revenue and revenue components are a function of the

three basic variables mentioned above. To determine how much of the variance each variable explained the step-regression analysis technique was used. Using these procedures gives us (33x3) regression equation models which are organized in the following way. First, the effects of the three independent variables (i.e. level of manufacturing employment, population size and median family income) on the dependent variable (revenue) for the corresponding year, will be discussed. Next the same independent variables' effect on new (dependent) revenue data five years later will be examined. Finally, change in the revenue data as a function of change in the three independent variables will be examined. This procedure will be followed for all the revenue components and for toaal county revenue.

In Model 1 that examines the effect of the level of manufacturing, population size and median family income on percent of intergovernmental federal transfers to the county government revenue, it was observed that the level of manufacturing explained an infinitesmal percent of the variance in 1956 (.0001), in 1961 (.0133) and in 1966 (.0128). The other two variables scarcely fared any better with population size explaining in 1956 (.0022), 1961 (.0056) and 1966 (.0069) as small a percent of the variance as was explained by median family income in the county in 1956 (.0079) in 1961 (.1525) and in 1966 only (.1353).

Only the standard regression coefficient for median income of the family appears to be negatively related to the percent of federal government transfers. In 1956 the standard regression coefficient was (-.0925) in 1961 it was (-.4196) but it lost about one percentage point

(.3954) in 1966. What this means is that the higher the percent of Federal government transfers the lower the median family income and vice versa. Put differently richer communities get less help in revenue raising from the federal government transfers than do poorer communities.

Measured by the t values (i.e., partial regression coefficient divided by their respective errors of estimate), independent variable X_1 (level of manufacturing) is not significantly associated with the dependent variable (Federal government transfers) at the .05 and .01 levels in any of the given fifteen years. The other two variables (X_2 and X_3), however, are significantly associated with the dependent variables in 1961 and 1966 but not thus associated in 1956. So that intergovernmental federal transfers appear to be a small but significant function of population size and median family income. This is related to the taxing powers of the Federal government and the transfer of payments. The amount of Federal government revenue from intergovernment transfers per capita does not change significantly either from 1956 to 1961 or from 1961 to 1966 and is in the small amount of 1 to 3 percent during this period of time. So the verdict of no variance explained can be brought to the three independent variables selected and the percent of Federal government transfers.

The second model, revenue from state intergovernmental transfers ($y_1 j_1 = a + b_1x_1 + b_2x_2 + b_3x_3$) being a function of the three independent variables reveals that a very small percent of the variance (.0031), (.0036), and (.0060) either singly or in a group is explained in 1956. Though this variance (R^2) increases slightly in 1961 and 1966, its

increase is not more than .01 percent. It was also observed that the beta values are negatively correlated for two of the independent variables. In 1956, both level of manufacturing (-.0428) and median family income (-.0812) are thus correlated. This means that the lower the level of manufacturing and median income the higher the revenue to county government from state intergovernment transfers in 1956. In 1961 and 1966, however, it is population size, rather than median family income that is negatively correlated giving the regression coefficient values of (-.2277) and (-.1861) respectively. The level of manufacturing employment and the size of the population are inversely related to the percent of intergovernmental transfers from the State in 1961 and 1966. The independent variable X_3, however, is significantly related at the .0001 level in both 1961 and 1966 with a standard regression coefficient of .41 in 1961 and .42 in 1966. In 1961, 14.5 percent of the variance is explained by income which increases one percent in 1966. Level of manufacturing is not significantly related to state transfers though size of population is. Looking at the equations singly or in the group of three variables, the change in the coefficient of determination (R^2 or the variance explained) accounts for 1 percent of the variance in 1956 increasing to 16 percent in 1961 and 17 percent in 1966. Of this percentage, median family income accounts for more than half of the variance explained in 1956 and 14.5 and 15.5 percent of it in 1961 and 1966 respectively.

Change in county revenue as a result of intergovernmental per capita transfers from the State is significant in 1961 for the median

family income alone and is positively correlated at both points of observation. Level of manufacturing has a negative correlation to the per capita intergovernmental transfers from the State government. What this appears to mean is that the higher the level of manufacturing employment, the lower the per capita intergovernmental state transfers. This is significant at the .0005 level. In 1966 none of the independent variables are significantly correlated to per capita state governmental transfers though a change is observed in the extent to which each variable explains variance. In 1961, 4 percent of the variance was explained by X_1 and X_3 but in 1966 these two variables combined explained only 1.5 percent. Population size which explained only 1 percent in 1961 gained in value to explain 6 percent in 1966.

In summary, then, it appears as if intergovernmental transfers from the State is a function of median family income in both 1961 and 1966 and not directly a function of level of manufacturing as has been traditionally assumed. It was also shown that level of manufacturing is inversely related to intergovernmental transfers from the State. This seems to imply that the level of manufacturing does relieve the state of its fiscal burden vis a vis transfer of payments to the local government. On the other hand, the shift could be explained by the fact that population is both negatively and significantly correlated to the state transfer variables, while median family income is positively correlated. State transfers to local government revenue appears to be a function of size of population (negatively) and median family income (positively).

In the third model the effect of the three independent variables on local property tax revenues is examined to test the assumption that industrial development eases the property tax burden of residents. In 1956 (the variance explained) coefficient of determination for level of manufacturing was .0003 and the multiple correlation .0180 and not significant. In 1961 the standardized regression coefficient is inversely related to the local government property tax revenue (-.1164). This pattern is relatively stable (-.1052) in 1966. The higher the property tax revenue, the lower the level of manufacturing, though the relationship is not significant at any of the three points in time. Regarding the other independent variables it was found that the size of the population in the coutty explained none of the variance in the model in 1956, .0006 in 1961 and .0190 in 1966. The standard regression coefficient was positive in 1956 and negatively related in 1961 (-.1592) and 1966 (-.2840). The greater the size of the population, the less the reliance on property tax revenue and vice versa, though this was not significant at any of the three time periods at which data were examined. The third variable (X_3) median family income, was not significant in 1956 though the equation revealed a negative standard regression coefficient (-.0620). Only .0035 percent of the variance explained is attributed to this variable. So while higher median incomes result in lower property taxes in 1956 the findings are not significant at the .001 or .005 levels of abstraction.

In 1961, median family income was significantly (.0001) and positively .3739, related to the local property tax revenue. It explained

12 (13.5 percent) of the variance in the group of variables. The higher the income, the greater the property tax. So that residents in counties which were relatively "rich" paid higher property taxes than in those counties where the residents were not so "rich". In 1966 the picture for median family income is relatively constant explaining two percent more of the variance than in 1961 (14.5). The regression coefficient is still positive and significant. Also significant though inversely related is the size of population in 1960 to the property tax revenue in 1966. The lower the size of the population, the greater the property tax revenue collected and vice versa.

When the change in the per capita property tax revenue for 1956 to 1961 is examined, a negative insignificant regression coefficient (.0442) is still observed for level of manufacturing, explaining (.0024) of the total variance of the three independent variables. Also negative and insignificant is the change in median family income on per capita property tax revenue from 1956 to 1961. Population size change is positive but insignificantly correlated. Only 5 percent of the total change in variance appears to be explained by all three variables.

The equation regarding change in property tax revenue from 1961 to 1966 explains 10 percent of the variance with size of population explaining 8 percent and showing inverse (-.2218) and significant correlations (-.0003). Median family income is also negatively correlated though with no degree of significance.

Examining the last component of revenue, other local taxes, it was seen that it explained .2 percent of the variance in 1956 and 1.4 percent

of the variance in 1966. It is not significant for any of the three variables though for median family income, there is a weak inverse relationship. Weak because it explains only .004 percent of the variance. One can say the higher the median family income the lower the local tax revenues. The per capita change in local government revenue (1056 to 1961 and 1961 to 1966) as a consequence of the three independent variables is positive and significant although it explains approximately .04 percent of the variance observed for the group of variables. Population is negatively correlated in the 1956 to 1961 time period, though this too is insignificant in that it explains one percent of the variance. In 1966 the per capita change in the local government revenues from other taxes showed almost no variation in the coefficient of determination. It was positive for population size and median family income and negatively correlated for level of manufacturing but not significant for any one or all three variables in a group. It explained eight percent of the total variance in the amount of revenue realized from the per capita local nonproperty tax base.

Finally, an equation model was designed to look at total revenue for the county, to determine the effects that could be explained by the three independent variables, level of manufacturing in county, size of population and median family income.

In the first equation that examined the effect of the three independent variables on total revenue it was found that (a) the level of manufacturing explains a minutesmal percent of the variance in 1956 (.4), in 1961 and in 1966 (.03) respectively. The other two variables fared

much better with size of population explaining 33 percent of the variance in 1956 and almost double that percentage (60 percent) in 1961 and 1966. The relationship between median income was weak explaining .3 percent of the variance in 1956 and .6 percent in 1961 and 1966.

The standard regression coefficient of total revenue is negatively, though insignificantly at .005 level, correlated to level of manufacturing employment in 1956 (-.0513), in 1961 (-.0008) and in 1966 (-.0005). It is also insignificant for median family income (.1668) in 1956, (.0817) in 1961 and (.0732) in 1966. For population size, the standard regression coefficient is positively and significantly correlated in 1956 (.5291), in 1961 (.7509) and in 1966 (.7479). What this appears to indicate is that population size and not the level of manufacturing per se determines the total revenue of the county governments. It has been often established that the location if industry stops the out-migration of people. So that by increasing the size of the local population one increases its revenue effort either through transfer payments or through taxation.

While a direct relationship between level of manufacturing and revenue realized does not exist, an indirect one can be atrributed to the fact that manufacturing increases population size of county governments, which affects the revenue capacity positively.

This analysis tried to examine the effect of level of manufacturing on county revenue taken in total and decomposed into important components. Two components, Federal government intergovernmental transfers and local taxes appeared to explain a very insignificant portion of the variance.

This can be attributed to the allocation of powers between Federal and State governments as specified by the U.S. Constitution. Since counties are creatures of the State, it appears as if the Federal government is not involved with it in any big way and transfers to the local government are not a function of any of the three variables that were discussed in this paper.

With the second dependent variable, State intergovernmental transfers, both level of manufacturing and size of population were inversley related to amount of transfers from the State. State revenue to local governments increased when level of manufacturing and size of population in the county were low. Median income was the only variable significantly and positively correlated indicating that higher incomes realized higher income taxes which resulted in higher revenue returns to the county.

Property tax revenue is regarded by local authorities as the most crucial component of revenue. According to the assumption, the manufacturing industries had an effect on lowering property taxes for the residents. A significant inverse relationship between the level of manufacturing and property tax revenue was expected from the data. In 1956, this expectation was not fulfilled. In 1961 and 1966 an inverse relationship was found but it explained only 1 percent of the variance and was not significant. What was found to be significant was the median family income in 1961 and 1966. This variable also explained about fifteen percent of the variance. Population size which was inversely related to property tax revenue was not significant in 1956 or 1961 but appeared to have a significant effect on property tax revenue five years later though the variance explained was only 2 percent.

Local tax revenue, which the literature states, accounted for 3 percent of the total revenue of local governments showed no surprises. It explained an infinitesmal portion of the variance (3%) and was not significant.

The most interesting aspect of the analysis was finding that the variance explained, or that in the significance levels showed no significant change, when revenue (dependent) data at a specific point in time was observed and then replaced by revenue data five years later. Further, when a transformation was carried out to determine the change in the revenue data from an earlier period and when this was observed against a similar transformation for the three independent variables, no significant change in the variance was observed, in the level of manufacturing equation. This could mean that the revenue effort of local government officials was not maximizing the revenue potential of the county. Some scholars have already observed this by stating that local officials need to know how to more efficiently tap their tax resource base. The debate in academia also appears to be around this issue, so perhaps academics and local officials need to pool resources to learn how to maximize effort to alleviate the fiscal crisis that local governments across the Nation appear to be facing.

The analysis seemed to indicate that the assumption that industrial development is the panacea for the community revenue needs, appears to be misconceived. County revenues appear to depend upon people and not on industrial plants per se. The moving of commerical or administrative operations to nonmetropolitan counties would probably have the same effect as the moving of an industrial plant has, though the ecological damage may not be as great.

Footnotes

[1]See James O'Connor, Fiscal Crisis of the State, California State University, 1973, for a recent discussion of this theme.

[2]Gene Summers, et al., Industrial Invasion A Quarter Century of Experience. Final EDA report to be published by Praeger, February, 1976.

[3]Henry Hunker, Industrial Development, D. C. Heath Co., 1974, p. 6.

[4]Summers, Ibid.

[5]Hirsch, W. Z., "Fiscal impact of industrialization on local governments", Review of Economies and Statistics, May, 1964.

[6]Garrison, C. B., "Economic impact of new industry in small towns", (Ph.D. dissertation, University of Kentucky, 1972). Also in National Tax Journal, Vol. XXIV, No. 47.

[7]Hagerman, Dale L. and Braschler, An Analysis of the Impact of Industrialization on a Small Town Economy, Research Bulletin 910, Columbia: University of Missouri, College of Agriculture, July, 1966.

[8]Stevens, J. B. and L. T. Wallace, Impact of Industrial Development on Howard County, Indiana, 1946-1960. Research Bulletin 784, LaFayette, Indiana Agricultural Experiment Station, August, 1969.

[9]Wadsworth, H. A. and J. M. Conrad, Impact of New Industry on a Rural Community. Research Bulletin No. 811, LaFayette, Indiana Agricultural Experiment Station: Purdue University, 1966.

[10]Shaffer, R. E., The Net Economic Impact of New Industry on Rural Communities in Eastern Oklahoma. Ph.D. dissertation, University of Nebraska, Kincoln, Nebraska, 1967.

[11]Summers, et al., op cit.

[12]Maxwell, James A., Financing State and Local Governments. The Borrkings Institute, Washington, D.C., 1965, p. 11.

[13]Census of Government Finances, The Bureau of Census, Government Division, Washington, D.C.

[14]Ibid.

[15]Till, T. E. Rural Industrialization and Southern Rural Poverty--Patterns of. Ph.D. dissertation, 1972.

[16]Akin, John S., "Fiscal capacity and estimation method of the A.C.I.R." National Tax Journal XXVI, No. 2, 1973.

"An improved method for estimating local fiscal capacity". Institute for Research on Poverty Paper #183-73, Madison, Wisconsin, 1973.

[17]Advisory Commission on Intergovernmental Relations 1971, Measuring the Fiscal Capacity and Effort of State and Local Areas, U.S. Document, Government Printing Office.

[18]The data was made available by Gene Summers who was instrumental in both compiling the file and in commencing research in this direction.

Bibliography

Advisory Commission in Intergovernmental Relations 1971, Measuring the Fiscal Capacity and Effort of State and Local Areas U.S. Documents. Government printing office.

Agricultural Economic Commission Report #128, "Financing Industrial Development through State and Local Government".

Akin, John S., "An improved method for estimating local fiscal capacity". Institute for Research on Poverty Paper #183-73.

Andrews, et al., "Impact of municipal operations in six small Wisconsin cities". University of Wisconsin, Department of Agriculture.

Bertrand, A. J. and Osborne, "Rural industrialization--a situational analysis". Rural Sociology 25, #4, Dec. 1960.

*Brady, Gay, Jr., "Economic impact of industrialization on rural town economy", M.S. Thesis, Arkansas, 1974.

Break, George F., "Revenue sharing its implications for present and future intergovernmental fiscal systems--The case for", N.T.J. XXIV No. 3, p. 307.

Bureau of Population and Economic Research, "Impact of industry in southern rural county", 1962.

*Carrolls and Sacks, "Property tax base and pattern of local government expenditure--influence of industry." Paper of Regional Soc. Assoc., Vol. 9, 1962.

*Davis, H., "Effects of industrialization upon economy", Ph.D. dissertation, Arkansa, 1963.

Ekland, P., "A theory of earmarking appraised: N.T.J. XXV No. 2, p. 223.

*Garrison, C. B., "Economic impact of new industry in small towns", Ph.D. dissertation, University of Kentucky, 1972.

Hirsch, Werner Z., "Fiscal impact of industrialization on local schools." Review of Economics and Statistics, May, 1964.

Hirsch, Werner Z., "Regional fiscal impact of local industrial development", paper presented to Regional Science Association, Vol. 7, 1961.

Keysering, Leon H., "Revenue sharing its implications for present and future systems--the case for", N.T.J. XXIV, No. 3.

Lampman, Robert J., "Transfer and redistribution as a social process", Institute for Research on Poverty Reprint #49, Madison, Wisconsin.

Manvel, Allen D., "Tax capacity and tax performance--a comment". N.T.J. XXVI No. 2.

Maxwell, James A., Financing State and Local Governments. The Brookings Institute, Washington, D.C., 1965.

*Merril K. and Ryther, D., "Plant location and community changes", Centre for Research in Business.

Morris, R. B., Jr., "Economic effects of new industry on small city." M.S. thesis at MIT, Baston, Massachussetts.

Netzer, Dick, et al., Property Tax Reform, 1967.

Saltzman, L. R., "Economic case studies on community sponsored effects to development", Ph.D. dissertation, 1972.

Summers, Gene, et al., Industrial Invasion. Final report to Office of Economic Research, Economic Development Administration, U.S. Department of Commerce, 1974 and Praeger (forthcoming, 1976).

Shaffer, R. E., "Net economic impact of new industry", Ph.D. dissertation, University of Nebraska, 1967.

Shaffer, R. and Tweetan, "Net economic impact of new industry on rural communities". Paper presented to Western Agriculture Economic Association Meeting, Logen, 1972.

Ture, Norma B., "An appraisal of new revenue sources", N.T.J. XXV, 3.

Till, T. E., "Rural industrialization and southern rural poverty--patterns of", Ph.D. dissertation, 1972.

Wilson, C. M., "Impact of industrial development on Lawrence County." M.S. thesis to University of Tennessee, 1965.

Weicher, John, "Aid expenditure and local government." N.T.J., #4.

*Documents on file at the Department of Applied Sociology, University of Wisconsin, Madison, Wisconsin.